

Factoring L14
Springboard 7.2

Foil:

1) $(X+5)(X+5)$

2) $(X-3)(X-3)$

3) $(2x+3)(-x-5)$

4) $(3x-2)(x+1)$

Factoring Polynomials Springboard 7.2

Pair up with your 9 o'clock partners. Bring with you your springboard packet and notes.

What do you think of when you think of factoring polynomials?

Take a minute, talk to your partner and prepare to share their ideas.

$$0 = x^2 + 3x - 4$$

Discuss with your partner about 2 different ways you would solve for x .

Factor $x^2 + 5x + 6$

Put in standard form	$x^2 + 5x + 6$
What are the factors of 6 that add up to 5?	3, 2
Find the factors	$(x+3)(x+2)$

Factor: $x^2 + 8x + 15$

Put in standard form	$x^2 + 8x + 15$
What are the factors of that add up to ?	
Find the factors	

Factor: $g^2 - 3g - 10$

Put in standard form	
What are the factors of that add up to ?	
Find the factors	

You try:

1) $z^2 + 2z - 63$

2) $b^2 - 10b + 16$

3) $r^2 - 7r - 18$

Special Identities

Square of sums $(a + b)^2 = (a+b)(a+b)$

Square of Differences $(a - b)^2 =$

Factor this perfect trinomial : $(x^2 + 6x + 9)$

Put in standard form	$x^2 + 6x + 9$
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Identify a and b	$a = \sqrt{x^2} = x$ $b = \sqrt{9} = 3$
Does $2ab = 6x$?	$2(x)(3) = 6x$
Which formula to use?	Square of sums
Find the factors	$(x + 3)^2$

Factor: $(x^2 - 10x + 25)$

Put in standard form	$x^2 - 10x + 25$
Which formula to use?	Square of differences
Identify a and b	
Find the factors	

You try:

Factor:

1) $x^2 + 4x + 4$

2) $y^2 - 18y + 81$

3) $m^2 + 14m + 49$

Grouping

Factoring by grouping!

Factor $2x^3 + x^2 + 8x + 4$

Original polynomial	$2x^3 + x^2 + 8x + 4$
Split into two parts	$(2x^3 + x^2) + (8x + 4)$
Factor out from both parts	$x^2(2x + 1) + 4(2x + 1)$
Factor out the common binomial	$(x^2 + 4)(2x + 1)$

Factor $x^3 + 3x^2 - 4x - 12$

Original polynomial	$x^3 + 3x^2 - 4x - 12$
Split into two parts	
Factor out from both parts	
Factor out the common binomial	

You Try:

Factor

1) $(x^3 + x^2 - x - 1)$

2) $(x^3 + 5x^2 - 4x - 20)$

3) $(8x^3 + 4x^2 - 2x - 1)$

X Method factoring

Factor: $3x^2 - 16x - 12$

Put in standard form	$3x^2 - 16x - 12$
Draw the X and fill it out Find the factors of -36 that they add up to -16.	
Bring down the first and last term of the original polynomial Bring down the two factors and add a variable to each.	
Use Grouping and factor	

Factor: $12a^2 + 11a = -2$

Put in standard form	
Draw the X and fill it out Find the factors of that add up to ¹	
Bring down the first and last term of the original polynomial Bring down the two factors and add a variable to each.	
Use grouping to factor	

We Try:

Factor $6x^2 = 4x + 16$

Put in standard form	
Draw the X and fill it out Find the factors of that add up to	
Bring down the first and last term of the original polynomial Bring down the two factors and add a variable to each.	

You Try:

1) $6x^2 + x = 2$

Closure

Exit Slip:

On a single piece of paper.

Factor:

1) $x^2 + 8x + 15$

2) $15a^2 + 4a - 3$

Show all work.